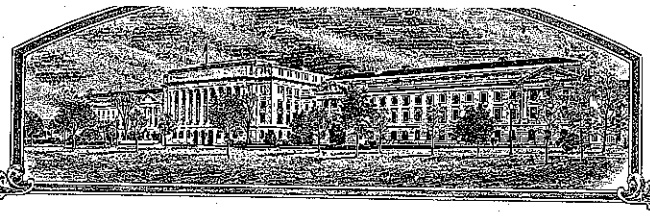

No. 9800099

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Oklahoma Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'2174'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this second day of April, in the year two thousand two.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.*

FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Oklahoma Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
HBZ374C

3. VARIETY NAME
2174

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
369 N Ag Hall
Oklahoma State University
Stillwater OK 74078-0507

5. TELEPHONE *(include area code)*
405/624-7041

6. FAX *(include area code)*
405-372-8519

FOR OFFICIAL USE ONLY

PVPO NUMBER
9800099

FILING DATE
2/3/98

7. GENUS AND SPECIES NAME
Triticum aestivum

8. FAMILY NAME *(Botanical)*
Gramineae

9. CROP KIND NAME *(Common name)*
Wheat

FEES RECEIVED
FILING AND EXAMINATION FEE:
$ 2450
DATE 1/30/1998

CERTIFICATION FEE:
$ 32500
DATE 7/3/01

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
University

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
D. L. Jones
Oklahoma Foundation Seed Stocks, Inc.
Dept. of Plant & Soil Sciences
Stillwater OK 74078-2071

14. TELEPHONE *(include area code)*
405/624-7041

15. FAX *(include area code)*
405/372-8519

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($2,460), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes," answer items 18 and 19 below)* ☐ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☒ YES *(If "yes," give names of countries and dates)* ☐ NO
USA, February, 1997

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*
D. C. Coston

NAME *(Please print or type)*
D. C. Coston

CAPACITY OR TITLE
Associate Director of the Agricultural Experiment Station

DATE
1-28-98

SIGNATURE OF APPLICANT *(Owner(s))*

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE

STD-470 (03-96) *(Previous editions are to be destroyed)*

(See reverse for instructions and information collection burden statement)

2174

Exhibit A: Origin and Breeding History

HBZ374C (2174) was first grown in the Oklahoma State University (OSU) wheat breeding program in harvest year 1991. It had been grown the previous year (1990) in the Pioneer Seed Co. Southern Elite Nursery as entry number 11 at Pioneer test sites in Enid, and Hinton, Oklahoma (2 reps at each location). It was identified as HBZ374C in that nursery. Since it was an advanced lined when it came to the OSU program, the Pioneer designation of HBZ374C was retained throughout the period of testing conducted by Oklahoma State University. Its pedigree was given in the Pioneer Seed Co. field books as IL71-5662/PL145//2165.

At the request of Pioneer Seed Co. officials, OSU researchers harvested the two sites in Oklahoma with the understanding that OSU was free to make use of any or all of that material in its own breeding program. The Enid and Hinton sites were harvested with a 'Hege' combine. HBZ374C (2174) ranked first out of 20 entries in grain yield as an average of the 2 locations. It was subsequently grown in the AWPN (OSU Advanced Wheat Performance Nursery) in 1991, 1992, 1993, 1994, 1995, and 1996. Additionally, it was grown in the SRPN (Southern Regional Performance Nursery) in 1994 and 1995.

HBZ374C (2174) is an awned, white chaffed, semi-dwarf, hard red winter wheat. A three-quarter (3/4) acre basic breeder seed increase was planted and off-types were rogued in 1996. A total of thirty-three acres were planted and off-types rogued for Foundation seed production in 1997.

9800099

Exh A addendum

> [redacted] Hard Red Wheat Variety: 2174
>
>
> HBZ374C WVW005*PL145/W7452)XAJ4V5X31XXX
>
>
>
> Selection id string: XAJ4V5X31XXX where
>
> X=F1 plants are bulked for the cross
> AJ4V=F2 plant selected, 145th plant designated by AJ4V
> X=F3 bulked with heads harvested for head row nursery
> 31=F4 head row number "31" selected
> X=F5 bulked
> X=F6 bulked
> X=F7 bulked
>
>
>
> Parents of HBZ374C:
>
> WVW005 IL 71-5662 WGV108/B58)X1
>

WGV108 VA 66-54-10
WGV313/SVC766*WGV273+WGV312;WGV284:WGV312;WGV301
B58 ARTHUR WGV100/WGV101

> PL145 PL145 HVV102/HVA022)X11
>

HVV102 NB 34 HVV065/SGW256*SGY034)X1

HVA022 SCOUT
HVA003*WGV122+HVA001/HVA002*HVA010)X1

> W7452 HVA029*B48/HVA029)XA3XXXXX
>

HVA029 STURDY HVV093*HVA007/SGW281

B48 MO W7510 WGV146/WGV202)X1

Addendum to Exh. A
AAA 29 Jan 2001

EXHIBIT A. Origin and Breeding History of the Variety

2. *Selection Criteria:*

As stated, HBZ374C was first grown by Oklahoma State University in harvest year 1991 and advanced for the next six (6) years - first on yield potential and "the right look" (which is the ART side of plant breeding). "The right look" is also known as "agronomic traits".

I have contacted Dr. Allen Diehl with Pioneer Seed and acquired information on HBZ374C prior to 1991. Even Pioneer personnel cannot agree on which generation it was in as supported by enclosed emails to me. The Pioneer wheat breeders are no longer with the company, so I worked with people in the data processing division. I would assume that HBZ374C was advanced through the Pioneer program on the same reasoning OSU used.

3. *Evidence of Uniformity and Stability:*

The OSU wheat breeder, Dr. E. L. Smith, liked a plant type with a small amount of variability built in so it would have a wider area of

adaptation. Is this observed variability uniform and stable? I would say yes, in the sense that it is observed across all environments, but with varying degrees of expression depending on the environmental interaction. These observations were made by OSU personnel for the six generations prior to HBZ374C's release in 1997.

4. *The Type and Frequency of Variants During Reproduction and Multiplicaiton and How These Variants May Be Identified:*

Tall variants within the variety.
Enclosed is a letter from the wheat breeder, Dr. E. L. Smith, to Dr. Lewis Edwards, Secretary-Treasurer of the Oklahoma Crop Improvement Association (the official seed certifying agency for Oklahoma) addressing these tall variants. Dr. Smith will not declare a ratio for these variants, but it has been my observation while working with this variety, depending on environment, the ratio of talls can be as high as about 5%. I do not have data to support this as it is a visual observation only.

2174

Exhibit B. Statement of Distinctness
The variety '2174' is most similar to '2137'. AAA 29 Jan 2001 per letter
2174 is an awned, white chaffed, semi-dwarf hard red winter wheat. It has a semi-upright juvenile growth habit. 2174 has above average test weight patterns and is classed as a medium maturing type of variety. It tends to be a tall semi-dwarf, being equal to or taller than most semi-dwarf wheats grown in the Southern Plains. Coleoptile-length measurements made in 1994 and 1995 show 2174 to have above-average values for coleoptile length.

Tolerance to low pH soil conditions appears to be better than average but not as good as 2137 for example. It is classed as intermediate-to-tolerant to acid soils. With regard to grazing characteristics, 2174 appears to have better-than-average fall forage production as well as good grain production after grazing.

2174 has excellent adult plant resistance to leaf rust. It is resistant to soil-borne mosaic virus, tan spot, and powdery mildew. It is either susceptible to or untested to other diseases and insect pests.

2174 has satisfactory milling and baking quality as indicated by tests conducted by the Oklahoma State University Wheat Quality Laboratory. Its flour protein concentration is near that of Karl/Karl 92. It has a relatively short mixing time requirement but it is entirely satisfactory in this regard. It has above-average tolerance to overmixing and has good H_2O absorption values.

In grain yields, 2174 has been competitive to the best varieties studied in tests conducted in Oklahoma for the past 6 years.

In summary, 2174 is best adapted for growing in the central and north central parts of the state; it is less well adapted for growing in the Panhandle and southwest Oklahoma. In its area of adaptation, 2174 is equal to or better than most of the newer varieties for grain yield potential and test weight. It has excellent adult-plant resistance to leaf rust and is also resistant to tan spot, powdery mildew and soil-borne mosaic virus. Additionally, it has an intermediate-to-tolerant reaction to acid soils. It exceeds most semi-dwarf cultivars in coleoptile length. 2174 has satisfactory end-use quality. This combination of traits makes it distinct from all other known varieties.

Addendum to the Exhibit B

D.L Jones confirmed (per phone conversation of 02/27/2001) the following morphological characteristic differences between '2174' and '2137':

Morphological Character	'2174'	'2137'
stem anthocyanin	present	absent
flag leaf	non-twisted	twisted
seed cheek	angular	rounded
head density	mid-dense	lax
glume width	medium (3.5 mm)	wide (>4mm)
seed crease width	medium (61-80% of kernel)	narrow (<60% of kernel)

TABLE 12

HBZ374C, OK93617, OK93P735

1996 AWPN Test Weight, Plant Height, Heading Date, 5 Locations

Entry	Test Weight	Plant Height	Heading Date
OK93617	58.0	56	32
HBZ374C = 2174	57.9	64	32
OK93P735 AAA 26 Jan 2001	57.5	59	32
Tonkawa	59.2	63	31
Cimarron	58.6	59	31
Karl 92	57.7	61	30
2180	56.6	53	30
Jagger	56.2	66	31
2137	55.9	65	32
2163	54.0	61	32

Test Weight (lbs/bu) average of 5 locations (LC, GD, LA, ST, GI)
Plant Height (cm) average of 5 locations
Date Headed (days after March 31) average of GI, GD, and ST

TABLE 13

TABLES FOR EXHIBIT B AAA 26 Jan 2001

HBZ374C, OK91P648, OK92403, OK93617, OK93P634, OK93P735

1995 AWPN Test Weight, Plant Height, Heading Date, 6 Locations

Entry	Test Weight	Plant Height	Heading Date
OK93P735	57.5	77	31
OK93P634	57.0	77	28
OK92403	56.9	75	27
HBZ374C = 2174	56.8	83	30
OK93617 AAA 26 Jan 2001	56.1	76	29
OK91P648	55.1	76	27
Tonkawa	58.0	80	28
2137	56.0	84	31
2180	55.9	72	23
Karl 92	55.9	77	27
Jagger	55.7	81	25
Cimarron	54.4	77	30

Test Weight (lbs/bu) average of 6 locations (AL, ST, LA, LC, CD, GI)
Plant Height (cm) average of 6 locations
Date Headed (days after March 31) average of GI and ST

TABLE 14

HBZ374C, OK91P648, OK93P735

1995 SRPN Test Weight, Plant Height, Heading Date, 4 Oklahoma Locations

Entry	Test Weight	Plant Height	Heading Date
OK93P735	57.5	74	30
HBZ374C=2174	56.2	78	29
OK91P648 AAA 26Jan2001	54.7	72	26
2137	56.8	82	29
Scout 66	55.6	84	36

Test Weight (lbs/bu) average of 4 locations (LA, ST, GI, AL)
Plant Height (cm) average of 4 locations
Date Headed (days after March 31) average of GI and ST

TABLE 15

HBZ374C, OK91P648, OK92403

1994 AWPN Test Weight, Plant Height, Heading Date, 7 Locations

Entry	Test Weight	Plant Height	Heading Date
HBZ374C =2174	59.3	82	30
OK92403 AAA	59.1	75	30
OK92P648 26 Jan 2001	56.1	71	30
Tonkawa	59.6	80	30
Chisholm	59.1	81	29
Karl 92	58.0	75	29
Jagger	57.1	82	29
2180	56.3	69	28
2163	55.6	78	31

Test Weight (lbs/bu) average of 7 locations (CD, LA, LC, TK, ST, GI, AL)
Plant Height (cm) average of 7 locations
Date Headed (days after March 31) average of GI and ST

TABLE 16

HBZ374C

1994 SRPN Test Weight, Plant Height, Heading Date, 4 Oklahoma Locations

Entry	Test Weight	Plant Height	Heading Date
HBZ374C =2174 AAA 26 Jan 2001	60.6	79	31
Tonkawa	60.5	76	30
2137	59.2	81	32
Jagger	59.2	80	30

Test Weight (lbs/bu) average of 4 locations (LA, ST GI, AL)
Plant Height (cm) average of 4 locations
Date Headed (days after March 31) average of GI and ST

TABLE 17

HBZ374C, OK91P648

1993 AWPN Test Weight, Plant Height, Heading Date, 5 Locations

Entry	Test Weight	Plant Height	Heading Date
HBZ374C = 2174	58.0	89	37
OK91P648 AAK 26 Jan 2001	52.4	86	37
Tonkawa	58.1	89	38
Karl 92	55.9	84	38
Cimarron	55.2	89	37
2180	54.5	80	36
2163	52.4	88	39

Test Weight (lbs/bu) average of 5 locations (LA, LC, CD, ST, GI)
Plant Height (cm) average of 5 locations
Date Headed (days after March 31) average of GI and ST

HBZ374C, OK91P648

1992 AWPN Test Weight, Plant Height, Heading Date, 6 Locations

Entry	Test Weight	Plant Height	Heading Date
HBZ374C =2174	57.9	84	25
OK91P648 AMA Variety 2001	53.4	76	22
Karl	58.2	83	22
Cimarron	56.5	77	23
2180	54.9	71	20
2163	53.0	83	24

Test Weight (lbs/bu) average of 6 locations (AL, ST, LA, LC, CD, GI)
Plant Height (cm) average of 6 locations
Date Headed (days after March 31) average of GI and ST

TABLE 19

HBZ374C

1991 AWPN Test Weight, Plant Height, Heading Date, 7 Locations

Entry	Test Weight	Plant Height	Heading Date
HBZ374C =2174 AAK 26Jan 2011	56.5	80	29
Csm	56.6	76	27
Karl	56.1	77	26
2180	55.1	67	20
2163	54.7	76	28

Test Weight (lbs/bu) average of 7 locations (TK, LA, CD, ST, WD, GD, GI)
Plant Height (cm) average of 7 locations
Date Headed (days after March 31) average of GD, GI and ST

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
[redacted]
BELTSVILLE, MARYLAND 20705

EXHIBI
(Wheat
C

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S)
Oklahoma Agricultural Experiment Station

ADDRESS (*Street and No. or R.F.D. No., City, State, and Zip Code*)
139 Ag Hall
Oklahoma State University
Stillwater OK 74078

FOR OFFICIAL USE ONLY

PVPO NUMBER 9800099

VARIETY NAME

TEMPORARY OR EXPERIMENTAL DESIGNATION

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. [ ][ ][ ] or [ ][ ]) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____

Please answer all questions for your variety; lack of response may delay progress of your application.

1. **KIND:**

[1] 1=Common 2=Durum 3=Club 4=Other (SPECIFY) _____

2. **VERNALIZATION:**

[2] 1=Spring 2=Winter 3=Other (SPECIFY) _____

3. **COLEOPTILE ANTHOCYANIN:**

[1] 1=Absent 2=Present

4. **JUVENILE PLANT GROWTH:**

[2] 1=Prostrate 2=Semi-erect 3=Erect

5. **PLANT COLOR (boot stage):**

[2] 1 = Yellow-Green 2 = Green 3 = Blue-Green

6. **FLAG LEAF (boot stage):**

[2] 1 = Erect 2 = Recurved [1] 1 = Not Twisted 2 = Twisted

7. **EAR EMERGENCE:**

[0][1] Number of Days Earlier Than 2137 *

[0][2] Number of Days Later Than Karl 92 *

8. **ANTHER COLOR:**

[1] 1 = YELLOW 2 = PURPLE

9. **PLANT HEIGHT (from soil to top of head, excluding awns):**

[0][4] cm Taller Than Karl 92 *

[0][2] cm Shorter Than 2137 *

10. STEM:

A. ANTHOCYANIN

[2] 1= Absent 2=Present

B. WAXY BLOOM

[1] 1=Absent 2=Present

C. HAIRINESS (last internode of rachis)

[1] 1=Absent 2=Present

D. INTERNODE (SPECIFY NUMBER) _____

[1] 1=Hollow 2=Semi-solid 3=Solid

E. PEDUNCLE

[2] 1=Absent 2=Present

[ ] cm Length

11. HEAD (at Maturity):

A. DENSITY

[2] 1=Lax 2=Middense 3= Dense

B. SHAPE

[1] 1 = Tapering 2= Strap 3 = Clavate 4 = Other (SPECIFY) _____

C. CURVATURE

[1] 1 = Erect 2 = Inclined 3 = Recurved

D. AWNEDNESS

[4] 1 = Awnless 2 = Apically Awnletted 3 = Awnletted 4 = Awned

12. GLUMES (at Maturity):

A. COLOR

[1] 1 = White 2 = Tan 3 = Other (SPECIFY) _____

B. SHOULDER

[5] 1 = Wanting 2 = Oblique 3 = Rounded 4 = Square 5 = Elevated 6 = Apiculate

C. BEAK

[3] 1 = Obtuse 2 = Acute 3 =Acuminate

D. LENGTH

[2] 1 = Short (ca. 7mm) 2 = Medium (ca. 8mm) 3 = Long (ca. 9mm)

E. WIDTH

[2] 1 = Narrow (ca. 3mm) 2 = Medium (ca. 3.5mm) 3 = Wide (ca. 4mm)

13. SEED:

A. SHAPE

[1] 1 = Ovate 2 = Oval 3 = Elliptical

B. CHEEK

[2] 1=Rounded 2=Angular

C. BRUSH

[2] 1=Short 2=Medium 3=Long

D. CREASE

[2] 1 = Width 60% or less of Kernel
2 = Width 80% or less of Kernel
3 = Width Nearly as Wide as Kernel

[1] 1 = Not Collared 2 = Collared

[1] 1 = Depth 20% or less of Kernel
2 = Depth 35% or less of Kernel
3 = Depth 50% or less of Kernel

POST-IT Fax Note 7672 | No. of Pages 2 | Today's Date 2-3-98 | Time 3:45PM

To MARK HERMELING | From D. L. JONES

Company PVPO | Company OFSS, INC.

Location | Location OKLA. | Dept. Charge

Fax # 301/504-5291 | Telephone # | Fax # 405/372-8519 | Telephone # 405/624-7041

Comments

Original Disposition: ☐ Destroy ☐ Return ☐ Call for pickup

PAGE 344 OF WHEAT EXHIBIT C FOR VARIETY 2174.

02 03 98

9800099

13. SEED: (continued)

E. COLOR

[3] 1 = White 2 = Amber 3 = Red 4 = Other (SPECIFY) _____

F. TEXTURE

[1] 1=Hard 2=Soft

G. PHENOL REACTION *(see instructions)*:

[5] 1 = Ivory 2 = Fawn 3 = Light Brown 4 = Dark Brown 5 = Black

14. DISEASE: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

Stem Rust *(Puccinia graminis* f. sp. *tritici)* [0] _____

Stripe Rust *(Puccinia striiformis)* [0] _____

Tan Spot *(Pyrenophora tritici-repentis)* [2] _____

Halo Spot *(Selenophoma donacis)* [0] _____

Septoria nodorum (Glume Blotch) [0] _____

Septoria avenae (Speckled Leaf Disease) [0] _____

Septoria tritici (Speckled Leaf Blotch) [1] _____

Scab (*Fusarium* spp.) [0] _____

"Black Point" (Kernel Smudge) [0] _____

Barley Yellow Dwarf Virus (BYDV) [3] _____

Soilborne Mosaic Virus (SBMV) [2] _____

Wheat Yellow (Spindle Streak) Mosaic Virus [0] _____

Wheat Streak Mosaic Virus (WSMV) [1] _____

Other (SPECIFY) _____ [ ] _____

Other (SPECIFY) _____ [ ] _____

Other (SPECIFY) _____ [ ] _____

Leaf Rust *(Puccinia recondita* f. sp. *tritici)* [2] _____

Loose Smut *(Ustilago tritici)* [0] _____

Flag Smut *(Urocystis agropyri)* [0] _____

Common Bunt *(Tilletia tritici* or *T. laevis)* [0] _____

Dwarf Bunt *(Tilletia controversa)* [0] _____

Karnal Bunt *(Tilletia indica)* [0] _____

Powdery Mildew *(Erysiphe graminis* f. sp. *tritici)* [2] _____

"Snow Molds" [0] _____

Common Root Rot *(Fusarium, Cochliobolus* and *Bipolaris* spp.) [0] _____

Rhizoctonia Root Rot *(Rhizoctonia solani)* [0] _____

Black Chaff *(Xanthomonas campestris* pv. *translucens)* [0] _____

Bacterial Leaf Blight *(Pseudomonas syringae* pv. *syringae)* [0] _____

Other (SPECIFY) _____ [ ] _____

Other (SPECIFY) _____ [ ] _____

Other (SPECIFY) _____ [ ] _____

Other (SPECIFY) _____ [ ] _____

9800099

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

Hessian Fly *(Mayetiola destructor)* [1]	Other (SPECIFY) [ ]
Stem Sawfly *(Cephus* spp.) [0]	Other (SPECIFY) [ ]
Cereal Leaf Beetle *(Oulema melanopa)* [0]	Other (SPECIFY) [ ]
Russian Aphid *(Diuraphis noxia)* [1]	Other (SPECIFY) [ ]
Greenbug *(Schizaphis graminum)* [1]	Other (SPECIFY) [ ]
Aphids [0]	Other (SPECIFY) [ ]

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

Under certain conditions, 2174 exhibits purple awn color.

END

2174

Exhibit D. Additional Description of the Variety

DESCRIPTION PERFORMANCE:

2174 (HBZ374C) is an awned, white chaffed, semi-dwarf, hard red winter wheat. It has a semi-upright juvenile growth habit. Other characteristics are given below.

Grain Yield Performance (Tables 1-11)
Critical comparisons involve 2163 and the newer varieties Jagger and 2137. AWPN for 1991, 1992, and 1993 show an average 4.0 bu/a advantage of 2174 over 2163 during this 3-year period. The AWPN/SRPN data for 1994, 1995, and 1996 show an average of 4.8 bu/a advantage of 2174 over 2163. During this same 3-year period, 2174 was approximately equal in yield to Jagger and 2137.

Test Weight, Plant height, Maturity (Tables 12-19).
In test weight, 2174 has been consistently better than 2163 and Jagger, equal to or slightly better than 2137, and not quite as good as Tonkawa, which is an excellent test weight variety. 2174 tends to be a tall semi-dwarf type, being equal to or slightly taller than Tonkawa or Jagger. It is 10 to 15 cm taller than 2180 which is considered a short semi-dwarf. In maturity, as measured by date-of-heading, 2174 is classed as a medium maturity type. It is 1 to 2 days later than Karl/Karl 92 and Jagger and about the same as 2137 and 2163.

End-Use Quality (Tables 20-25).
2174 has satisfactory milling and baking quality as indicated by tests conducted by the OSU Wheat Quality Laboratory. Its flour protein content is near that of Karl/Karl 92. It has a relatively short mixing time but it is entirely satisfactory in that regard. It has good mixing tolerance and H_2O absorption values.

Acid Soil Reaction
In 1995, 2174 was evaluated in a replicated nursery in an acid soil site (pH 4.5) The following year (1996) it was grown in a non-replicated observation nursery at the same site. In 1995 it showed good grain yield and test weight responses. (Yields in kg/ha were 2830, 2779, 2576, 2335, and 1280 respectively for 2163, 2174, Jagger, 2137, and Karl 92). In

DESCRIPTION PERFORMANCE: (continued)

1996 (non-replicated nursery) 2174 did less well relative to checks. Yields in bu/A were 30.5, 26.4, 22.1, 20.3, and 0.0 for 2163, 2137, Jagger, 2174, and Karl 92 respectively. On balance, 2174 would appear to be intermediate-to-tolerant to acid soils.

Coleoptile Length

Measurements made in SRPN nurseries in 1994 and 1995 indicate 2174 to have above average values for coleoptile length. (In 1994, 2174 had a value of 91mm versus 88mm for nursery mean. In 1995, 2174 was 89mm versus 78mm for nursery mean.)

Disease Reactions

2174 has excellent adult plant resistance to leaf rust. It is resistant to soil-borne mosaic virus. It is also resistant to tan spot and powdery mildew. It is either susceptible or untested to other diseases and insect pests.

AREA OF ADAPTATION:

2174 is best adapted for growing in the central and north central parts of the state; it is less well adapted for growing in the Panhandle and southwest Oklahoma (see Table 1).

REASONS FOR RELEASE:

In its area of adaptation, 2174 is equal to or better than most of the newer varieties for grain yield potential and test weight. It has excellent adult-plant resistance to leaf rust and is also resistant to tan-spot, powdery mildew and soil borne virus. Additionally, it has an intermediate-to-tolerant reaction to acid soils. It exceeds most semi-dwarf cultivars in coleoptile length. 2174 has satisfactory end use quality. This combination of traits should be of benefit to a substantial number of wheat growers in the state.

TABLE 20

HBZ374C, OK93·617, OK93P735

1996 AWPN Quality Data, 5 Locations

Entry	Wht. Prot.	Flour Prot.	Flour Yield	Mix Abs.	Mix Time	Mix Tol.	NIR Hard.	SKHT Hard.
HBZ374C	14.3	12.8	62.0	7.0	5.76	5	84.8	71.8 H
OK93·617	13.7	12.7	61.0	6.9	6.61	5	70.2	69.2 H
OK93P735	13.4	12.6	63.0	6.9	7.49	4	59.4	65.0 H
Karl 92	14.1	12.9	63.0	6.8	8.10	4	72.6	59.9 H
Jagger	14.3	12.7	61.0	7.0	6.65	4	77.7	74.8 H
2163	13.2	12.5	59.0	7.0	5.41	4	69.3	59.0 H
2180	13.7	12.4	60.0	6.8	5.81	4	87.9	71.5 H
Tonkawa	13.9	12.4	60.0	6.9	7.06	5	53.4	65.4 H
Cimarron	13.5	12.3	61.0	6.9	6.99	5	64.0	70.3 H
2137	13.1	12.2	60.0	7.0	6.31	5	72.4	58.7 H

Quality scores are means of evaluations of samples from GD, ST, LA, LC, GI.

TABLE 21

HBZ374C, OK91P648, OK92·403, OK93·617, OK93P634, OK93P735

1995 AWPN Quality Data, 5 Locations

Entry	Wht. Prot.	Flour Prot.	Flour Yield	Mix Abs.	Mix Time	Mix Tol.	NIR Hard.	SKHT Hard.
HBZ374C	13.7	11.9	59.1	6.5	3.60	4	65.7	80.5 H
OK91P648	13.1	11.0	52.5	6.4	2.90	5	27.5	37.4 M
OK92·403	13.6	11.9	55.8	6.5	3.10	5	50.2	74.2 H
OK93·617	13.6	12.0	57.1	6.5	4.00	5	68.5	79.2 H
OK93P634	13.0	11.8	58.3	6.4	4.15	5	54.3	64.5 H
OK93P735	13.2	11.9	59.0	6.5	4.80	6	58.4	77.7 H
Karl 92	13.3	11.6	59.0	6.5	4.25	6	37.3	67.4 H
2180	13.7	12.3	55.8	6.5	3.85	5	69.7	80.3 H
Cimarron	12.5	11.2	57.2	6.4	5.10	6	55.5	85.2 H
Tonkawa	13.6	11.7	57.1	6.5	4.50	6	44.4	70.0 H
2163	12.7	11.2	55.2	6.4	3.10	5	58.3	75.7 H

Quality scores are means of evaluations of samples from AL, LA, ST, TK, GI.

TABLE 22

HBZ374C, OK91P648, OK92403

1994 AWPN Quality Data, 5 Locations

Entry	Wht. Prot.	Flour Prot.	Flour Yield	Mix Abs.	Mix Time	Mix Tol.	NIR Hard.	SKHT Hard.
HBZ374C	14.1	12.8	59.5	6.6	5.45	4	57.9	-
OK91P648	13.5	11.3	53.7	6.5	5.00	4	42.1	-
OK92403	14.3	12.7	56.5	6.7	4.65	4	75.9	-
Karl 92	13.4	12.3	58.9	6.8	8.10	5	76.8	-
2180	13.9	12.7	54.8	6.5	4.85	4	89.5	-
Cimarron	13.5	12.2	57.0	6.5	5.80	5	74.1	-
Tonkawa	14.1	12.2	53.7	6.7	5.65	4	57.3	-
2163	13.0	11.7	55.4	6.5	4.65	4	75.5	-

Quality scores are means of evaluations of samples from AL, GD, GI, LA, ST.

TABLE 23

HBZ374C, OK91P648

1993 AWPN Quality Data, 7 Locations

Entry	Wht. Prot.	Flour Prot.	Flour Yield	Mix Abs.	Mix Time	Mix Tol.	NIR Hard.	SKHT Hard.
HBZ374C	13.5	12.4	61.5	6.5	4.46	4	49.7	-
OK91P648	13.4	11.0	51.3	6.4	3.50	4	29.7	-
Karl 92	12.6	11.3	58.4	6.3	5.79	5	52.8	-
2180	12.9	11.7	52.6	6.5	3.68	4	64.4	-
Cimarron	13.1	11.8	56.9	6.4	5.15	5	57.5	-
Tonkawa	13.2	11.8	54.7	6.4	3.82	4	47.3	-
2163	13.0	11.3	53.3	6.2	3.43	5	56.1	-

Quality scores are means of evaluations of samples from ST, LA, LC, GD, GI, CD, TK.

TABLE 24

HBZ374C, OK91P648

1992 AWPN Quality Data, 4 Locations

Entry	Wht. Prot.	Flour Prot.	Flour Yield	Mix Abs.	Mix Time	Mix Tol.	NIR Hard.	SKHT Hard.
HBZ374C	13.4	12.2	59.2	6.8	6.37	6	67.0	-
OK91P648	13.4	10.9	52.3	6.6	4.37	5	31.6	-
Karl	14.1	12.6	58.7	6.7	7.00	5	50.2	-
2180	13.4	12.4	57.8	6.8	5.31	4	73.0	-
Cimarron	12.8	11.7	58.4	6.7	7.50	5	55.7	-
2163	12.6	11.4	54.4	6.6	4.12	5	51.7	-

Quality scores are means of evaluations of samples from ST, LA, AL, GI.

HBZ374C

1991 AWPN Quality Data, 4 Locations

Entry	Wht. Prot.	Flour Prot.	Flour Yield	Mix Abs.	Mix Time	Mix Tol.	NIR Hard.	SKHT Hard.
HBZ374C	13.8	12.0	60.4	6.5	4.31	4	55.3	-
Karl	14.9	12.6	58.1	6.6	4.87	4	49.3	-
2180	13.9	12.5	59.9	6.6	4.56	4	58.4	-
Cimarron	13.7	12.2	59.9	6.5	5.62	4	41.5	-
2163	12.7	11.4	56.7	6.4	3.69	4	45.4	-

Quality scores are means of evaluations of samples from ST, GI, GD, LA.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)

Oklahoma Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

HBZ374C

3. VARIETY NAME

2174

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*

139 Ag Hall
Oklahoma State University
Stillwater OK 74078

5. TELEPHONE *(include area code)*

405/744-5398

6. FAX *(include area code)*

405/744-5339

7. PVPO NUMBER

9800099

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [XX] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company?
If no, give name of country _____ [X] YES [ ] NO

10. Is the applicant the original breeder? If no, please answer the following: [ ] YES [X] NO

a. If original rights to variety were owned by individual(s):
Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country YES, PIONEER SEED COMPANY

b. If original rights to variety were owned by a company: [X] YES [ ] NO
Is the original breeder(s) U.S. based company? If no, give name of country _____

11. Additional explantion on ownership *(If needed, use reverse for extra space):*

SEE EXHIBIT A: PIONEER SEED CO TRANSFERRED GERMPLASM TO OKLAHOMA AGRICULTURAL EXPERIMENT STATION IN 1990.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

2174

Exhibit E. Statement of the Basis of Applicant Ownership

The variety for which Plant Variety Protection is hereby sought was developed by employees of Oklahoma State University Agricultural Experiment Station. All rights to any invention, discovery, or development made by these employees, while employed by Oklahoma State University Agricultural Experiment Station, were assigned by Oklahoma State University Agricultural Experiment Station with no rights of any kind retained by the employees.